DCE questionnaire. The variable "cost" was a significant determinant in treatment's choice. A monetary value could be assigned to each of the other 5 attributes. A significant monetary discrimination was reached for all attributes ($P < 0.001$), except for distribution mode. The conditional-probit-model demonstrated that care-givers are willing-to-pay: €81 for No local Side Effects, 80€ for No long term side effects, €64 for 8 weeks of therapeutic response and €27 for one day of the rapeutic response delay. **CONCLUSION:** To our knowledge, our study is the first to elicit preferences and WTP from the care givers of children with atopic dermatitis. The importance of this study is the achievement of care givers preferences in a simply and well accepted method to allow planning optimal health care.

## POSTER SESSION II

## METHODS & CONCEPTS

**PMC1**

### SIMULATION MODELING OF CARDIOVASCULAR DISEASE: IS APPLYING AVERAGE LIFE EXPECTANCY TO ALL SURVIVORS DETAILED ENOUGH?

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**OBJECTIVES:** Trials are too short to fully quantify survival, yet detailed life expectancy estimates are required to accurately assess the cost-effectiveness of interventions for cardiovascular disease. Whether the overall life expectancy of a cohort provides an adequate proxy for patients suffering events during follow up is examined in this study. **METHODS:** Health records of Saskatchewan residents with cardiovascular disease between 1990 and 1995 were obtained. Data were available from January 1980 through December 2002 or date of death. Life expectancy was estimated for the entire cohort of patients and separately for patients with subsequent non-fatal myocardial infarction (MI) or stroke, and with no further events. Piece-wise parametric regressions were used to derive mortality hazard functions; time-dependent Cox proportional hazards were used to adjust for covariates. The resulting hazard functions were used to derive the survival curves. **RESULTS:** Of 53,983 patients (56% male; mean age 70.4 years) 3898 suffered subsequent non-fatal MI and 3714 non-fatal stroke. Accounting for the occurrence of these events lead to considerably shorter life expectancy compared to projected survival derived from the full cohort. For instance, the life expectancy of a 60 year old male who survived an MI is estimated to be 16.6 years when derived from the full cohort versus 13.5 years when this event is considered. The impact of stroke is even greater, as the expected survival after this event is 9.9 years. Differences between full-cohort and event-based estimates were larger for women. For a 60 year old female, the full-cohort estimate is 19.7 years and 15.1 and 11.3 years after MI and stroke, respectively. **CONCLUSIONS:** Events that occur during follow-up strongly impact the life expectancy of those who survive beyond the study window. Ignoring such differences by oversimplifying model inputs can lead to inaccurate results and dilute treatment effects.

**PMC2**

### EFFICIENT DATA MINING AND PROBABILISTIC INFERENCE WITH P-COURSE: A BAYESIAN METHOD WITH MULTILEVEL PRIORS FOR MEDICAL APPLICATIONS

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**OBJECTIVES:** As observations, parameters, and models are uncertain, there exist several ways to explain data with the parameters and models. Of all the plausible explanations, the simplest can be considered best, yielding the best predictions (the "Occam's razor" principle). Relevant parameters are needed in prognostics. This paper presents an efficient and innovative supervised method for prediction/estimation: a new greedy Naive Bayesian Network (NB) classifier P-Course. **METHODS:** Predictions are sequential by nature: choice regarding the next parameter, test or drug depends on the previous inference and earlier experience. This sequence provides valuable information for relevance, which P-Course's hill-descending screening utilizes: the greedy algorithm starts with an empty predictor set, evaluates all possible changes at each iteration, applies the parameter leading to the best improvement in log score (indicator for prediction distribution) and stops when no improvement is gained in the score. **RESULTS:** P-Course introduces a rare possibility to utilize multiple priors to improve model's accuracy and area under ROC curve (AUC) in exploratory/confirmatory analysis. P-Course offers several functionalities through a graphical user interface. First, the data is uploaded in ASCII format through "Administration". Then, in "Properties", the dependent variable and independent variables (automatic/manual/ignore) are chosen. In "Priors", likelihood or weights with multilevel priors (direct/reversed) are chosen. The overall quality of the models, defaults, and case-by-case predictions can be tested with e.g. leave-one-out cross-validation, with a new data set (substitution) or with a stratum excluded from the teaching set (portioning) through "Prediction". Likelihood, posterior and inverse probability predictions are available in the "Java Playground". Severe over-learning is rarely observed. The approach is supported by theory and predictions. **CONCLUSIONS:** P-Course can utilize scarce, censored and complex data for e.g. segmentation, stratification, prediction, merging, data reduction, variable screening, interaction and adverse event identification, value of information (VOI), sensitivity analysis, inversion, diagnostics, and decision support.